

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: John Jianhua Chen et al.
Application No.: unassigned
Date Filed: Filed herewith
Title: MEDICAL DEVICES HAVING MULTIPLE LAYERS
Group Art Unit: unassigned
Examiner.: unassigned
Atty. Docket: 04-0048

INFORMATION DISCLOSURE STATEMENT (IDS)

Mail Stop Patent Application
Commissioner For Patents
P.O. Box 1450
Arlington, VA 22313-1450

SIR:

In accordance with 37 C.F.R. §1.56 and in compliance with 37 C.F.R. §§1.97 and 1.98, the references listed on attached Form PTO/SB/08 and/or subsequently identified herein, are being submitted herewith for consideration by the United States Patent and Trademark Office.

I. COPIES

- a. A legible copy of (i) each foreign patent; (ii) each publication or that portion which caused it to be listed; and (iii) all other information or that portion which caused it to be listed, is included herewith.
- b. Any patents, publications or other information which are listed on PTO/SB/08 which are not enclosed herewith were previously cited by or submitted to the PTO in one of the following applications which has been relied upon for an earlier filing date under 35 U.S.C. §120:

U.S. Serial Number

U.S. Filing Date

II. CONCISE EXPLANATION OF THE RELEVANCE (check at least one box)

- a. Except as may be indicated below in (b) of this section, all of the patents, publications or other information are in the English language (concise explanation not required).
- b. A concise explanation of the relevance of all patents, publications or other information listed that is not in the English language is as follows:
- c. The following additional information is provided for the Examiner's consideration:

III. CROSS REFERENCE TO RELATED APPLICATION(S)

The Examiner is advised that the following co-pending application(s) contain(s) subject matter that may be related to the present application. By bringing this (these) applications to the Examiner's attention, Applicant(s) does(do) not waive the confidentiality provisions of 35 U.S.C. §122.

Serial No.

Filing Date

Art Unit

FEES

IV. **THIS IDS IS BEING FILED UNDER 37 C.F.R. §1.97(b):** (check one box)

- a. within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d) (37 C.F.R. §1.97(b)(1)). No fee or statement is required.
- b. within three months of the date of entry of the national stage as set forth in § 1.491 in an international application (37 C.F.R. §1.97(b)(2)). No fee or statement is required.
- c. before the mailing date of a first Office Action on the merits (37 C.F.R. §1.97(b)(3)). No fee or statement is required.
- d. before the mailing date of a first Office Action after the filing of a request for continued examination under § 1.114 (37 C.F.R. § 1.97(b)(4)). No fee or statement is required.

V. **THIS IDS IS BEING FILED UNDER 37 C.F.R. §1.97(c):** (check one box)

before the mailing date of any of a Final Office Action under 37 C.F.R. §1.113, a Notice of Allowance under 37 C.F.R. §1.311, or an action that otherwise closes prosecution in the application (See 37 C.F.R. §1.97(c)).

- a. No statement; therefore, charge deposit account 50-1047 the fee set forth in 37 C.F.R. §1.17(p).
- b. See the statement below. No fee is required.

VI. **THIS IDS IS BEING FILED UNDER 37 C.F.R. §1.97(d):**

on or before payment of the issue fee and is accompanied by the following:

- 1) a statement under 37 C.F.R. §1.97(e) as provided below; and
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The undersigned hereby states that

- a. each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of IDS; or
- b. no item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application, and to knowledge of the person signing the statement after making reasonable inquiry, no item of information contained in the IDS was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement, or
- c. some of the items of information contained in the IDS were cited in a communication from a foreign Patent Office. As to this information, the undersigned states that each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby states that no item of this remaining information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application or, to the knowledge of the person signing the statement after making reasonable inquiry, no item of information contained in the IDS was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement.

VIII. **PAYMENT OF FEES**

- A check in the amount of _____ is enclosed for the above-identified fee(s).
- Please charge Deposit Account No. 50-1047 in the amount of \$180.00 for the above-indicated fee(s).
- If Applicant has overlooked any additional fees, or if any overpayment has been made, the Commissioner is hereby authorized to credit or debit Deposit Account 50-1047.
- Two Copies of this paper are attached for Deposit Account charges and debits.

It is Applicant(s)' opinion that the claims presently on file patently distinguish the present invention from each of these references. The above references are being cited only in the interests of candor and without any admission that they constitute statutory prior art or contain matter which anticipates the invention or which would render the same obvious, either singly or in a combination, to a person of ordinary skill in the art.

If the Examiner has any questions concerning this IDS, he/she is requested to contact the undersigned. If it is determined that this IDS has been filed under the wrong rule, the PTO is requested to consider this IDS under the proper rule (with a petition if necessary) and charge the appropriate fee to Deposit Account No. 50-1047.

Respectfully submitted,



Keum J. Park
Attorney for Applicant(s)
Reg. No. 42,059
Tel. 908-518-7700
Fax 908-518-7795

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 References (minus US patent documents)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Application Number	unassigned
				Filing Date	Filed Herewith
				First Named Inventor	John Jianhua Chen
				Group Art Unit	unassigned
				Examiner Name	unassigned
Sheet	1	of	3	Attorney Docket Number	04-0048

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T
		Office ³	Number ⁴	Class/Subclass			
	1	WO	99/47252	B01J 13/00	Lerche Karl Heinz (DE) et al.	09-23-1999	
	2	WO	03/103854 A1	B05D 1/18, B01D 3/00	Nicholas A. Kotov (US) et al.	06-06-2003	
	3	WO	00/44507	B05D 1/14, 3/00, G11B 5/62	Nicholas A. Kotov (US) et al.	08-03-2000	

Examiner Signature		Date Considered	
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				Examiner Name	unassigned
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OTHER PRIOR ART—NON-PATENT LITERATURE DOCUMENTS		
Examiner Initials'	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
	A1	CHUNG, A.J. AND RUBNER, M.F., Methods of Loading and Releasing Low Molecular Weight Cationic Molecules in Weak Polyelectrolyte Multilayer Films, <i>Langmuir</i> 2002, 18, 1176-1183.
	A2	FRANK CARUSO et al., Microencapsulation of Uncharged Low Molecular Weight Organic Materials by Polyelectrolyte Multilayer Self-assembly, <i>Langmuir</i> 2000, 16, 8932-8936
	A3	GI-RA, YI et al., Ordered Macroporous Particles by Colloidal Templating, <i>Chem. Mater.</i> 2001, 13, 2613-2618
	A4	SHCHUKIN, D.G. et al., Micron-Scale Hollow Polyelectrolyte Capsules with Nanosized Magnetic Fe ₃ O ₄ Inside, <i>Materials Letters</i> 57, 1743-1747, 2003.
	A5	RADTCHENKO, I.L. et al., A Novel Method for Encapsulation of Poorly Water-soluble Drugs: Precipitation in Polyelectrolyte Multilayer Shells, <i>International Journal of Pharmaceutics</i> , 242, 219-223 (2002).
	A6	RADTCHENKO, I.L. et al., Assembly of Alternated Multivalent Ion/Polyelectrolyte Layers on Colloidal Particles. Stability of the Multilayers and Encapsulation of Macromolecules into Polyelectrolyte Capsules, <i>Journal of Colloid and Interface Science</i> , 230, 272-280 (2000)
	A7	WHAU, WINKY L. et al., Surface-chemistry technology for microfluidics, <i>J. Micromech. Microeng.</i> 13 (2003) 272-278
	A8	RADTCHENKO et al., Incorporation of macromolecules into polyelectrolyte micro and nanocapsules via surface controlled precipitation on colloidal particles, <i>Colloids and Surfaces A: Physicochemical and Engineering Aspects</i> 202 (2002) 127-133.
	A9	MOYA, S. et al., Polyelectrolyte multilayer capsules templated on biological cells: core oxidation influences layer chemistry, <i>Colloids and Surfaces A: Physicochemical and Engineering Aspects</i> 183-185 (2001) 27-40.
	A10	ANTIPOV, ALEXEI A. ET AL., Polyelectrolyte multilayer capsule permeability control, <i>Colloids and Surfaces A: Physicochemical and Engineering Aspects</i> 198-200 (2002) 535-541

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A11	QIU, XINGPING et al., Studies on the Drug Release Properties of Polysaccharide Multilayers Encapsulated Ibuprofen Microparticles, <i>Langmuir</i> 2001, 17, 5375-5380
A12	ANTIPOV, ALEXEI A. et al., Sustained Release Properties of Polyelectrolyte Multilayer Capsules, <i>J. Phys. Chem. B</i> 2001, 105, 2281-2284, October 27, 2000
A13	http://www.bmed.mcgill.ca/tabrizian/People_pages/Benjamin2.htm#COMMUNICATIONS , THIERRY, BENJAMIN, Development of new strategies for endovascular revascularization procedures, 1-7, date unknown but before the filing of this application
A14	https://engineering.purdue.edu/BME/Seminars/2003/july_14.html , Graduate Seminar, Stent coating for drug delivery: Coating polymeric micelles using polyelectrolytes Purdue University Biomedical Engineering Seminar, 2003, 1-2, July 14, 2003
A15	http://www2.latech.edu/~ylvov/research/research.htm , LVOV, YURI M., Nanofabrication of ordered multilayers by alternate absorption of polyions, nanoparticles and proteins: From planar films to microtemplates, Institute for Micromanufacturing, LaTech, Ruston, LA 71272, pp. 1-13, date unknown but before the filing of this application.
A16	POMMERSHEIM, RAINER; SCHREZENMEIR, JURGEN; VOGT, WALTER. "Immobilization of enzymes by multilayer microcapsules" <i>Macromol. Chem. Phys.</i> Vol. 195. 1994. pp 1557-1567.
A17	RILLING, P.; POMMERSHEIM, WALTER R.; VOGT, W. "Encapsulation of cytochrome C by multilayer microcapsules. A model for improved enzyme immobilization". <i>Journal of Membrane Science</i> Vol. 129. 1997. pp. 283-287.
A18	SUKHORUKOV, GLEB B.; SHCHUKIN, DMITRY G.; DONG, WEN-FEI; MOHWALD, HELMUT; LULEVICH, VALENTIN V.; VINOGRADOVA, OLGA I. "Comparative Analysis of Hollow and Filled Polyelectrolyte Microcapsules Templated on Melamine Formaldehyde and Carbonate Cores". <i>Macromol. Chem. Phys.</i> 2004. Vol. 205. pp. 530-535
A19	SASTRY, MURALI; KUMAR, ASHAVANI; DATAR, SUVARNA; DHARMADHIKARI, C.V.; GANESH, KRISHNA N. "DNA-mediated electrostatic assembly of gold nanoparticles into linear arrays by a simple drop-coating procedure". <i>Applied Physics Letters</i> . Vol. 78, No. 19. May 7, 2001. pp. 2943-2945.
A20	MAMEDOV, ARIF A.; KOTOV, NICHOLAS A.; PRATO, MAURIZIO; GULDI, DIRK M.; WICKSTED, JAMES P; HIRSCH, ANDREAS. "Molecular design of strong single-wall carbon nanotube/polyelectrolyte multilayer composites". <i>Nature Publishing Group</i> . November 2002. Vol. 1. pp. 190-194.

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